

EXTRA PRACTICE 37
Solving Radical Equations
Use after Section 9.5

Name _____

Example: Solve.

$$\sqrt{x+19} - \sqrt{x-20} = 3$$

$$\begin{aligned}\sqrt{x+19} &= \sqrt{x-20} + 3 \\ (\sqrt{x+19})^2 &= (\sqrt{x-20} + 3)^2 \\ x+19 &= x-20 + 6\sqrt{x-20} + 9 \\ 30 &= 6\sqrt{x-20} \\ 5 &= \sqrt{x-20} \\ 5^2 &= (\sqrt{x-20})^2 \\ 25 &= x-20 \\ 45 &= x\end{aligned}$$

The solution is 45.

Check:

$$\begin{array}{r|l}\sqrt{x+19} - \sqrt{x-20} = 3 & \\ \hline \sqrt{45+19} - \sqrt{45-20} & 3 \\ \sqrt{64} - \sqrt{25} & \\ 8 - 5 & \\ 3 & \end{array}$$

Solve.

1. $x + 2 = \sqrt{7x+2}$ _____

2. $\sqrt{x} - 3 = 3$ _____

3. $\sqrt{x+9} + \sqrt{x+2} = 7$ _____

4. $y - 5 = \sqrt{y-3}$ _____

5. $\sqrt{-3x+4} = 2 - x$ _____

6. $1 - x = \sqrt{-5x+1}$ _____

7. $\sqrt{a} + 2 = 5$ _____

8. $\sqrt{x-5} + \sqrt{x+6} = 11$ _____

EXTRA PRACTICE 37 (continued)
Solving Radical Equations
Use after Section 9.5

9. $\sqrt[3]{x-1} - 3 = 0$ _____

10. $\sqrt{y+3} - \sqrt{2y-8} = 1$ _____

11. $\sqrt{x+12} - \sqrt{x-12} = 12$ _____

12. $\sqrt{x+4} - \sqrt{2x+9} = -1$ _____

13. $\sqrt{x+7} + \sqrt{x-4} = 11$ _____

14. $5 - \sqrt{x} = 1$ _____

15. $\sqrt[3]{4x+3} + 2 = 5$ _____

16. $\sqrt{x+9} + \sqrt{x+4} = 5$ _____

17. $\sqrt{x+10} + \sqrt{x} = 3$ _____

18. $\sqrt{5x+3} = \sqrt{3x+7}$ _____

19. $\sqrt{7x+8} - \sqrt{41-2x} = 3$ _____

20. $\sqrt{10-2x} - \sqrt{5x+16} = 3$ _____